



# Tompkins County SWCD Five Year Agricultural Environmental Management (AEM) Strategic Plan: 2014-2019



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## **Tompkins County AEM Mission Statement**

***“To provide improved quality of life to Tompkins County residents by maintaining and improving environmental stewardship on farms.”***

## **Tompkins County AEM Vision Statement**

***The Tompkins County AEM Program envisions a partnership of farmers, planners, local businesses, watershed organizations, government officials and the citizens of Tompkins County working cooperatively to protect and enhance the environment for future generations.***

## Background of AEM Program

The Agricultural Environmental Management (AEM) Program is funded through the New York State Environmental Protection Fund (EPF) and managed by the New York State Department of Agriculture and Markets (NYS Ag & Markets), in partnership with the United States Department of Agriculture, the New York State Soil and Water Conservation Committee (SWCC) and County Soil and Water Conservation Districts (SWCDs). The AEM program is part of NYS Ag & Markets law and is in place to provide all state SWCDs with a consistent level of non-competitive funding and a uniform methodology to help manage farms in an environmentally responsible manner. As a statewide recognized planning and implementation tool the AEM program makes it possible for a greater number of farms to access various cost-share grant programs to improve environmental practices while also documenting current best management strategies as they pertain to natural resources.

The Natural Resource Conservation Service (NRCS) in conjunction with the Farm Service Agency (FSA) have several programs, which rely heavily on the AEM program to locate and identify priority areas for implementation, in place to help promote and pay for the installation of runoff and erosion control practices. Promoting this kind of runoff management awareness is even more important now, as current AEM records in Tompkins County indicate that a surge in the number of new farmers who are largely unaware of the impact their activities can have, not only on the landscape around them, but on the county as a whole. In addition, many farmers, new and experienced alike, remain largely unaware of the state and federal programs that exist to assist them in expanding and developing their operations with an eye towards maintaining environmental quality as well as agricultural productivity. With the aid of the AEM program, the District can ensure that these farmers and landowners, new and old, have access to this vital information to safeguard the health of natural resources and help them install BMPs that will benefit all.

The base funding for the AEM program has been established as a means to provide a non-competitive funding source to all interested NYS SWCDs to develop and implement their locally led AEM programs. As guiding documents, five year strategic plans are required by the SWCC. Local SWCDs interact with farms throughout their county based on the priorities in their respective five year strategic plans to identify environmental resource concerns and suggest appropriate best management practices (BMPs) to address them. Implementation of plans may then be developed by SWCDs, certified planners, engineers and others in cooperation with farmers to address these environmental resource concerns. Over 20 years of program data has shown that the farmers' overall operations are improved through the proper planning and sound engineering practices encouraged and employed through the AEM program.

As mentioned previously, there are many funding sources available to help farmers implement BMPs to address any past, present, or future environmental concerns occurring on their property. With primary pollutants of concern identified for each watershed by various government agencies, it is now the task of the Tompkins County SWCD (TCSWCD or the District), with the voluntary consent and aid of the farmer/landowner, to use the AEM tiered system to identify current resource concerns on farms (Tier II), and once identified, compare them to the pollutants of concern listed on either the NYSDEC PWL or Chesapeake Bay Total Maximum Daily Load (TMDL) plan to rank the identified resource concerns from greatest to least, design a plan (Tier III) to implement the appropriate BMP to address the concern and finally apply to an appropriate funding source to help install the necessary practice (Tier IV). Since the planning step of this process addresses the farm in a holistic manner, instead of simply addressing individual issues, practices identified as leading to possible resource concerns in the future can be addressed at the same time as those resource concerns stemming from current operations. When water runoff is addressed properly, the AEM program can also address the bulk of soil management concerns without extra work, since one of the greatest concerns when managing soil resources is preventing the loss of prime farm soils through erosion.

The AEM program is completely voluntary and meant to aid farmers in seeing the environmental and economic benefits of implementing BMPs on their farm operations. As the frontline implementers of conservation, farmers are encouraged through the program to implement whatever BMPs they can to safeguard their natural resources within the constraints of their own funding, time and available resources. If identified resource concerns are determined by the SWCDs to be significant and the most suitable BMP(s) to address the concern too costly for the farm owners to install on their own, then the farmer may apply for taxpayer funded assistance programs through recognized channels of environmental protection. In this way, the AEM program has, in Tompkins County alone, enrolled over 300 farms in the AEM program, helping them identify the resource concerns on their properties, suggested BMPs to address identified environmental concerns, and for some 200 farms, secured funding to designed and implement the suggested BMPs.

## **Plan Development Process**

The AEM strategic plan that the District has been using to date was created in 2009 and was designed for use until 2014 and focused mostly on establishing the AEM program within Tompkins County. To keep pace with the changing number, size and types of agricultural operations in Tompkins County; the changing environmental resource concerns as well as both current and predicted land uses, a new AEM strategic plan needs to be designed and submitted

to NYS Ag & Markets for 2015. This document is intended to help guide the districts AEM Program forward for the next five years (2015-2019), building onto what was already been achieved by the previous strategic plan to help create successful farmers who are also good environmental stewards. Currently, the TCSWCD AEM program is implemented, coordinated and managed by one Grazing Technician, with oversight from the current District Manager. To fully implement this five year plan, staffing will most likely have to increase within the TCSWCD.

### **Stakeholder Meeting**

Updating the TCSWCD five year strategic plan required a great deal of cooperation and coordination between TCSWCD and other county, state and federal agencies as well as the general public; collectively, these groups are referred to as our “AEM Stakeholders.” The TCSWCD defined its AEM Stakeholders as any groups or individual who had a vested interest in agricultural and/or the natural resources and infrastructure that any agricultural operation could affect through the course of its day-to-day operations. Using this definition, the TCSWCD was able to identify roughly 100 individual stakeholders, ranging from representatives of Federal, State, and County government offices, town and county highway personnel, volunteers who collected data on stream health and pollutant discharge, Cornell Cooperative Extension (CCE), groups responsible for developing and implementing watershed health for Cayuga and Owasco Lakes, and the Susquehanna River Basin, groups responsible for developing and implementing plans to protect farmland and the rights of farms, as well as local farmers who have actively participated in the AEM program.

The AEM Stakeholder meeting was held in March of 2015, with the primary goal of receiving input from the AEM Stakeholders concerning which of the roughly fifteen watersheds in Tompkins County should the TCSWCD focus on and what resource concerns within these watersheds should be the priority focus for the AEM program over the next five years. The results of this meeting helped to guide our prioritization of watersheds and resource concerns.

### **Priority Watersheds**

Watersheds of highest priority were determined by the stakeholders according to the map seen in



**Figure 1.** The Stakeholder priority watersheds, from highest to lowest rank were as follows:

- Salmon Creek
- Fall Creek
- Owasco Inlet
- Bolter-Taughanock Creek
- Cayuga Inlet, encompassing the Inlet, Enfield and Six-Mile Creeks

#### **Primary Resource Concerns**

In addition, water resource concerns were also identified at the stakeholder meeting and were the same for each watershed listed above and consist of:

- Manure Runoff
- Pathogen Contamination
- Nutrient Runoff
- Field Runoff

In addition to these resource concerns, there were secondary concerns for erosion, silt/sedimentation and pesticide runoff noted for Fall Creek, Cayuga Inlet, and Bolter-Taughanock Creek specifically. Invasive species, primarily Hydrilla, was also noted as a secondary concern in Cayuga Inlet. These data from the stakeholder meeting, along with input from existing Natural Resource Conservation Service (NRCS), Farm Service Agency (FSA) and TCSWCD AEM files, were then used to determine the final priority watersheds and resource concerns to be addressed by the AEM program in the next five years. Raw data from the meeting are shown in Figures 11 and 12.

The TCSWCD AEM five year strategic plan has been updated to take into account all available information from TCSWCD and NRCS files, findings from the AEM Stakeholder meeting, and is designed to work in conjunction with similar plans developed, or being developed by our sister agencies, including the Upper Susquehanna Coalition (USC) Chesapeake Bay Watershed Agreement, the Tompkins County Agriculture and Farmland Protection Plan, Town Agriculture and Farmland Protection Plans, the DEC Priority Water Bodies List (PWL), the Cayuga Lake Watershed Restoration and Protection Plan, the Owasco Lake Agricultural Conservation Blueprint, and the Tompkins County Water Resource Council Water Quality Strategy in the



hopes of creating an effective and efficient working partnership between these conservation agencies.

## Status of Agriculture in Tompkins County

To fully understand the agricultural trends of Tompkins County, as well as fully appreciate both the goals set forth in the original AEM Five Year Plan (2009-2014) and the goals set forth in the new AEM Five Year Plan (2015-2019) it is important to look at both past and present records. All data collected here was gathered from the USDA Census of Agricultural Website. Data for this website is collected every five years, with portions updated periodically during this time. The last full census was taken in 2012 and the next full census will be compiled in 2017. The most recent updates occurred in February of 2014.

Agriculture is the second largest, behind the New York Stock Exchange, source of revenue for New York State. According to the most recent census data, in 2014, there were 90,774 acres categorized as farmland in Tompkins County, down from 108,739 acres in 2007. The number of acres reported as crop land has dropped from 67,292 acres in 2007 to 47,143 in 2014; while the amount of permanent pasture land has risen from 5,659 acres to 7,281 acres over the same time period. Forested land has also risen sharply, from 21,838 acres in 2007 to roughly 140,000 acres today and land claimed for “other uses” has decreased slightly, from 13,950 to 9,886 acres (Total Acreage changes between 1978 and the most recent updates in 2014 can be seen below in Table 1).

	1978	1982	1987	1992	1997	2002	2007	2014
<b>Number of Farms</b>	598	567	532	441	557	563	588	558
<b>Total Farm Acreage</b>	123,210	121,068	110,609	91,822	102,610	100,931	108,739	90,774
<i>Average Acreage per Farm</i>	~	214	208	208	184	179	185	163
<i>Harvested Cropland</i>	79,982	77,047	75,634	62,421	67,731	66,960	67,292	47,143
<i>Woodland</i>	~	~	20,329	16,921	19,245	19,245	21,838	19,183
<i>Pasture Land</i>	~	~	~	~	~	~	5,659	7,281
<i>Other Land*</i>	~	~	14,646	12,480	13,898	15,012	13,950	9,886
<b>% of County in Farmland</b>	39%	39%	35%	29%	33%	32%	35%	30%
<b>Total Market value of Agricultural Sales (\$1,000)</b>	30,904	39,624	42,056	50,720	48,139	41,908	60,185	67,391

\*Other Land: land that is not permanent pasture, harvested crop or woodland, includes farm roads, hedgerows, etc

**Table 1. Historic Farm Base Summary, Tompkins County, 1978-2014**

*Source: USDA Census of Agriculture*

According to the most recent census from the NYSDEC, the number of Confined Animal Feeding Operations (CAFOs) in Tompkins county has also fallen since the original AEM Strategic Plan was written, from 12 of all sizes ten years ago to 10 (7 medium CAFO 200-699 animals, 3 Large CAFOs greater than 700 animals), all of them dairy operations, while the overall number of farms recorded in Tompkins County has dropped slightly between 2002 and 2014, from 588 to 558. In addition, odor complaints from farming operations of all sizes have declined since the last AEM Strategic Plan was written, in large part through the increased use of odor control BMPs; including draglines, manure injection, and proper composting practices that were heavily promoted through CCE and the AEM Program.

Year	Small (1-99)	Medium (100-249)	Large (260-999)	Extra Large (1000-2000+)
2009	348	129	84	27
2012	350	116	73	19
2015	363	114	69	12
<b>% Change</b>	<b>5%</b>	<b>-12%</b>	<b>-18%</b>	<b>-55%</b>

**Table 2. Percentage Change in Farms by Farm Size, Tompkins County 2009-2014**

*Source: US Ag Census*

Since 2007, livestock numbers in Tompkins County have increased despite the decline in both farm acreage and number. There are now an estimated 9,085 dairy cows in Tompkins County producing over 180,000,000 pounds of milk annually. This is up from the 8,800 dairy cows recorded in 2007 producing 174,000,000 pounds of milk annually, an increase in of 3.5% in both dairy herd size and annual production, despite the overall number of dairy farms decreasing from 106 in 2007 to 62 in 2014. This growth in dairy production corresponds to a 13% decrease in the number of beef cows, 1,300 to 1,133 over the same period with cattle replacement rate (new calves) increasing by 7%. Sheep and goat production fell 25% from 2,500 to 1,904 (despite an increase in farm number between 2007 and 2014) and horse numbers fell by 11% from 1,800 to 1,608 with a decrease in farm number from 33 in 2007 to 25 in 2014. Growth and decline in numbers from all other livestock (alpacas, pigs and poultry) were not available, but the current rough estimate is 3,903 animals in Tompkins County.

Enterprise Type	2007	2014	% change
Wineries	4	9	125%
Vegetables	42	66	58%
Greenhouse & Nursery Crops	46	64	39%
Equine	33	25	-24%

Fruits, Tree Nuts, Berries	29	29	0%
Beef Cattle	115	77	-33%
Dairy Cattle	106	62	-42%
Sheep, Goats, & Lambs	32	40	25%

**Table 3. Farms by Type in Tompkins County, 2007 & 2014**

*Source USDA Census of Agriculture*

Other agricultural operations showed a marked increase (30-40%) over the past five years, with the number of vegetable farms increasing from 40 to 66; greenhouse and nursery crop operations increasing from 46 to 64; major vineyards and wineries increasing from 4 to 9 operations. The Number of fruit, nut and berry producers remained the same. Farm numbers listed above can be seen in Table 3 along with the percent change between 2007 and 2014. Despite the decrease in the overall number of farmland acres, and the decline in CAFO farms in general, cropland production, beef, sheep, goat, and horse operations,

**Figure 3** illustrates that the revenue generated from agricultural operations in Tompkins County has increased 11%: from \$60 million dollars in 2007 to \$67 Million in 2014. These data indicate that, County wide; there is a decline in the overall number acres being dedicated to farmland, farming operations, and row crop cultivation, but with an increase in pasture acres. When taken together, these data show that the general trend for agriculture in Tompkins County over the past ten years or so, as shown in figure 2, has been away from larger “industrial” agriculture operations and towards smaller “niche” farms. In this instance, “small farm” is defined by the USDA, not the acreage or livestock numbers of operation, but as an operation that generates less than \$250,000 annually from agricultural production, and where the principal operator reports his/her primary occupation as other than farming. Furthermore, the steady increase in permanent pastureland indicates that farming operations of all sizes in Tompkins County are focusing more on livestock production rather than crop cultivation, a conclusion further supported by data showing that dairy operations have demonstrated a steady increase in both livestock numbers and overall milk production for the past decade. According to

**Figure 3**, the estimated revenue generated by agricultural operations in Tompkins County is roughly \$67.4 million for 2012, which is likely very close to the generated revenue for 2014 and 2015, even with the noted diversification of agricultural practices, the increased milk production, and the declining agricultural acres and operations. On the surface, this looks as though the yearly revenue generated by agricultural operation in Tompkins County has grown steadily and significantly since the earliest USDA Agricultural Census taken in 1978, which only produced \$30.9 million. However, when these values are adjusted for inflation we see that the real value of the yearly agricultural sales has actually decreased by 34.5% since 1978.

The conclusion that should be drawn from these data is that agriculture, a significant part of life in New York State as a whole, and Tompkins County specifically, is undergoing a radical paradigm shift: from a few large operations focusing on one or two products, to a larger number of smaller operations producing everything from hay to meat to milk while at the same time significant amounts of land that once made up the larger operations is being subdivided and lost to residential and commercial development. A significant contributor to this land loss to commercial development is the large number of farmers who are retiring (see Figure 4) and new or younger farmers, do not have the means, knowledge, or, in some cases, the interest to take over the existing large operations. The end result is that during this time of diversification, there is great opportunity for the AEM program to help farmers at all levels of experience and operation size: from providing guidance to new farmers in establish environmentally sound practices from the earliest stages of their farm's operation, to remediating or eliminating existing resource concerns and risky or outmoded practices at established farms as the focus of their agricultural operations shift; help to ensuring these agricultural operations remain ecologically sound and economically viable during these uncertain times.

## Environmental Quality Information

Agriculture, which accounts for roughly 30% of the total land use, is a key component in defining Tompkins County, economically, socially and environmentally. As the streams, wetlands, forests and soils have contributed to the agricultural prosperity of Tompkins County, so too do the agricultural practices, both past and present, contribute to the relative health of those same natural features. This relationship has been further strained by climate change over recent years.

### Water Resources

Tompkins County has a plentiful supply of surface water, which is routed by roughly fifteen watersheds, which affect and are affected by agricultural practices (see

**Figure 5** & Figure 6). Nearly every farm in these watersheds has an onsite source, whether perennial or intermittent, of water that is respected by the farmer. These are generally given a wide berth in the form of buffers and areas that are in some way excluded from machinery and livestock, but areas do exist within the watersheds for improvement. According to the New York State Department of Environmental Conservation's Priority Waterbodies List, the individual pollutants of concern (e.g. nutrients, silt, sedimentation, etc.) in each watershed may come from various sources such as stream bank erosion, wastewater treatment systems or agriculture. In some watersheds the primary identified

source of nutrient pollutants arise from agricultural practices. Pollutants to a water course impact the water resources in various ways impairing either aquatic life, recreation, and/or drinking water supplies. Pollutants of concern for individual watersheds within the County will be addressed further in the work plan focus area section.

As indicated in the above paragraph, one of the biggest resource concerns addressed with the AEM program is the runoff, in the form of silt/sedimentation, nutrients, manure and pathogens, from farm operations affecting surface and groundwater. A recent study done in 2013 by Cornell has shown a positive correlation between agricultural land use in a watershed and the amount of bioavailable phosphorus (P) present in the southern end of Cayuga Lake and that most of this input (95%) is coming from non-point source inputs (i.e. field runoff). This finding is important because phosphorus is the primary limiting factor in freshwater ecosystems, so when the concentration of P increases in a freshwater ecosystem P then becomes one of the primary factors negatively affecting water quality; causing algal blooms, increasing pathogens concentration, eutrophication, and hypoxia . Erosion and sediment control is therefore one of the primary resource concerns that the AEM system is designed to address, since phosphorus enters surface water either directly through manure and fertilizer runoff, or indirectly by ionic attachment to eroded soil particles. The average retention time once phosphorus enters Cayuga Lake is 10 years, so addressing this concern at its source is far more effective than trying to deal with it after it has entered the surface water bodies. This Cornell study also determined that the watersheds constituting the primary runoff concern, contributing approximately 40% of the surface water entering Cayuga Lake, are Fall Creek, the Cayuga Inlet, Six Mile Creek, Salmon Creek and Bolter-Taughanock Creek. These findings provide further support for the conclusions obtained at the AEM stakeholder meeting for the natural resource focus areas and priority concerns that the AEM program should focus over the next five years.

There are two broad methods of addressing runoff from farmland. The first method is by identifying a farm's direct (point source) inputs; namely, collection and treatment procedures for runoff originating from silage leachate, manure storage areas, milk house waste discharge, as well as accidental spills of milk, fuel, fertilizers and/or pesticides. By ensuring these potential sources of contamination are properly contained and procedures in place to address everyday practices as well as accidental spills, significant amounts of farm runoff can be eliminated. The second method employed by the AEM program to address water quality concerns is to help make landowners aware of runoff coming from not just the farmstead (i.e. the central area of buildings necessary for farm operations to be performed) but from their fields (non-point source runoff) as well. This aspect of the program requires the landowner to look past their property boundaries to see how their actions affect areas further downstream and how upstream neighbors may impact their operations. Relatively minor changes to land use, such as the orientation of tillage rows or

the installation of a few hundred feet of tile drainage can change the runoff and drainage patterns in significant ways that the farmers are unaware of.

As mentioned previously, the hydrology of Tompkins County is such that nearly every landowner and farmer has access, at some time of the year, to surface water, streams, ponds or wetlands. For the most part, these features are treated with respect by the farmers working the land and given a wide berth. However, this is not, and has not, always been the case and mismanaged water resources in the past have resulted in environmentally adverse effects on individual water bodies, like Cayuga Lake. In some cases the result of poor resource management can leave the entire watershed impaired. Every significant watershed in Tompkins County, as can be seen in Figure 10, has been identified by either State or Federal conservation agencies as being adversely affected by past or present agricultural practices which are monitored to varying degrees. Areas appearing in red, orange and yellow have been identified by the NYSDEC, and are listed in the New York state Section 303(d) List of Impaired/TMDL Waters as having use impairment varying from aquatic habitat loss to public drinking water impacts. areas outlined in green are part of the Upper Susquehanna Watershed, which flows into the Chesapeake Bay and is therefore subject to a Federal Environmental Protection Agency (EPA) TMDL plan to control the flow of sediments and nutrients from land use practices within those watersheds in an effort to rehabilitate the damaged ecosystems and water quality of Chesapeake Bay.

Showing the major watersheds in Tompkins County along with their use impairment status becomes all the more significant when compared with the general information presented in Table 4 below. These data represented here indicate that all but one of the priority watersheds for the county is a principle water source: whether it be for the cities of Ithaca or Auburn, Cornell University, or the various other towns and villages located within these watersheds. In addition to that, all of the watersheds noted as principle water sources have been listed with some degree of use impairment, with agricultural practices as a suspected primary contributor.

<b>Watershed</b>	<b>Watershed Acreage</b>	<b>Drinking Water Source (Y/N)</b>	<b>NYSDEC Contaminants of Concern</b>	<b>AEM Tier II Results for Most Commonly Noted Resource Concern</b>
Fall Creek	61,350	Y (Cornell)	Nutrients	Runoff from Pastures: Nutrients, Silt and Sedimentation
Salmon Creek	22,900	N	Nutrients, Silt and Sedimentation	Runoff from Barnyards: Nutrients, Pathogens, and Silt and Sedimentation
Owasco Inlet	29,000	Y (Auburn)	Nutrients	Runoff from Fields and Barnyards: Nutrients, Pathogens

Cayuga Inlet	106,450	Y (Ithaca)	Nutrients/ Silt and Sedimentation	Runoff from Pastures: Silt and Sediment, and Nutrients
Bolter/ Taughanock Creek	17,400	N	Nutrients and Pathogens	Runoff from Pastures: Silt and Sediment, and nutrients.
Cayuga Lake	965	Y (Ithaca)	Nutrients, and Silt and Sedimentation	Combination of Above Noted Contaminants

**Table 4. Watershed Use and Concern Information**

This table also indicates, according to Tier II Surveys taken in the respective watersheds that several farming operations have not been able to implement adequate BMPs to address the contaminants of concern noted by the NYSDEC, and must be addressed before the risk of permanent damage to the watersheds and their associated ecosystems can occur. In large part, this also means simply bringing certain features to the attention of the farmer during the AEM Tier II visit, as some critical environmental areas and habitats, as defined by state and federal criteria, are not as obvious as perennial streams or ponds and can go largely unidentified by the landowners. This leads to the development of these areas without regard to the consequences of the watershed. In many instances, the inclusion of practices as simple as riparian buffers or roof gutters would address the bulk of water runoff and erosion concerns for most agricultural fields. Despite this, over the past five years, AEM has enabled the TCSWCD to locate, prioritize and install BMPs in the watersheds showing the most impairment from runoff contaminants and will continue to do so.

Uncontrolled runoff from farming practices has had another, unforeseen effect on the County landscape over the years; one which the TCSWCD is actively working to address using tools provided by AEM. In recent years, runoff from tile drainage systems and roof water collection systems have begun to overwhelm road ditches in the Towns of Enfield, Groton and Ulysses (all located in the north east and north west corners of the county). This commonly implemented practice has led to damaged town infrastructure since the excess runoff is discharging into road ditches that were not designed to carry the extra flow volumes of water, leading to erosion, road undercutting and in some cases damage to such important structures as bridges or even damage to the property of other landowners. There is not much farmers can do about existing drainage lines discharging into road ditches, but we at the District can keep this aspect in mind going forward when addressing future drainage concerns and incorporate BMPs that minimize the volume and force of water entering the road ditches as part of the landowners overall farm plan.

## **Soil Resources**



In Tompkins County, there are 41,453 acres of prime soils, 127,762 acres of soils of statewide significance and an additional 19,428 acres of soils suitable for farming when properly drained (see **Error! Reference source not found.** for soils map). Accordingly, farming practices have become increasingly concentrated on areas with the best soil profiles, which tend to be mostly in the north east and north west corners of the county and located at the tops and bottoms of valleys, though some farming does occur on the steeply sloping sides of the glacial valleys in Tompkins County. Additionally, the Farm Service Agency (FSA) has recorded 17,604 acres of soil that, in addition to being identified as important soils for agriculture, are also categorized as Highly Erodible Land (HEL), and as such are highly susceptible to erosive pressures from development and inadequate farming practices. These soils represent a finite resource of Tompkins County and should be protected.

Soil health is being recognized globally as a primary environmental resource concern and receiving a great deal of attention concerning ways to preserve its unique physical, chemical and biological properties that make it such a vital resource for both natural terrestrial ecosystems and agriculture as a whole. Practices are being developed that encourage the establishment of communities of microorganisms within the soil spaces, reducing compaction, which improves the ability of soil to absorb and hold water, as well as ways of encouraging nitrogen fixation and maintaining the nutrient balance, moisture content and pH of soils to keep soils naturally productive without having to apply chemicals.

#### Soils Definitions

Prime soils – have the best combination of physical and chemical characteristics for agricultural production with minimal inputs of fertilizer, lime, etc. to produce highest and best yields for viable agriculture. Prime soils are characterized by having high lime, high nutrient supply capacity, good structure/texture, well drained (or when artificially drained), flat to gently sloping, and significant depth before reaching bedrock.

Soils of Statewide Importance – land which is deemed suitable for agricultural production when appropriate management practices are applied.

For exact definition, see:

<http://www.law.cornell.edu/cfr/text/7/657.5>

In addition to addressing water runoff from agricultural practices that will physically remove prime soils and nutrients from a site, the AEM program is also used to identify and determine the impact of practices that negatively impact soil health and can be used in conjunction with state monies from the EPF, and/or grant monies provided from the EPA through NRCS and FSA to plan for and implement BMPs designed to maintain soil health and farm productivity. These practices, such as cover crops, no-till cropping, pasture rotation, and other practices, are designed to help maintain and, where necessary, rebuild the physical, biological and chemical properties of the soils, ensuring not only the productivity of the farms but also the soils' ability to hold and retain water, retain and cycle nutrients, sequester carbon, and detoxify harmful chemicals.

Soil health has also been increasingly threatened by development pressure over the years, which threatens not only to remove valuable farmland from productivity, but also to counter the other beneficial abilities of these prime soils. A portion of the acres lost from agricultural production (see Table 1 for current versus past agricultural acreage values) were lost to housing and other development projects.

The Tompkins County Planning department administers the Purchase of Development Rights (PDR) program for Tompkins County, a program designed to keep prime agricultural land from being developed for other uses by allotting farmers funds to make up the difference between the land values of land that has been “developed” for construction versus the value of “non-developed” land used for agricultural and natural processes. Tompkins County in conjunction with the towns of Dryden, Lansing and Ithaca continue to hold and monitor PDR easements on six farms, constituting 2,242 acres of protected prime farm land, in the County (see Figure 7). These areas were identified based on soil types and contiguous farming. This data was collected using files created through the AEM program, NRCS and the Tompkins County Assessment office. These data were further utilized by the county planning department to create the Agricultural Resource Focus Areas (ARFA) map (see Figure 9). However, the rise in overall land value, which has largely resulted from competition for productive land between Tompkins County farmers and farmers from neighboring Counties, has narrowed the gap between the “developed” and “non-developed” land values, though PDR remains a valuable tool for farmland protection.

## **AEM Work Plan Focus Areas**

The AEM Five Year Strategic Plan will focus largely on identifying farms in priority watersheds with significant runoff concerns (nutrient, pathogen and silt/sediment). These farms will then be prioritized based on the degree of impact that implementing BMPs will have both on the site and on any nearby water bodies. This will help ensure that all time, money and District resources are utilized to address the most significant resource concerns in the most disturbed county watersheds. This may also mean doing many small runoff control projects depending on Tier II survey findings and/or landowner interest and ability to participate, as well as recommending landowners for NRCS and FSA sponsored/managed grants and programs. The AEM tiered system will be used to identify farms with the highest resource concerns in the priority watersheds as determined by our stakeholders, NRCS, FSA and TCSWCD files and approval of the District Board of Directors.

## Priority Watersheds:

- 1) **Fall Creek**- Due to impending TMDL and its use as a water source to Cornell, and other towns and villages in Groton and Dryden. Fall Creek is also a significant contributor to South End Cayuga Lake, a significant water source for the city of Ithaca.
- 2) **Salmon Creek**- Density of Farms and CAFOs. This watershed appears to contribute nutrients and sediment runoff to Cayuga Lake disproportionate to its size. Tompkins County SWCD would work closely with Cayuga County SWCD in addressing resource concerns in this watershed.
- 3) **Owasco Inlet**- Density of farm operations along with large amounts of nutrient and pathogen runoff to Owasco Lake, a significant water source to Cayuga County and the city of Auburn. Tompkins County SWCD would work closely with Cayuga County SWCD in addressing resource concerns in this watershed.
- 4) **Cayuga Inlet, encompassing the Inlet, Enfield Creek and Six Mile Creek**- Significant as a water source and recreational area to Ithaca. High instances of erosion leading to increased contributions of silt, sediment and nutrients to Cayuga Lake.
- 5) **Bolter-Taughanock Creek**- Only a very small portion of this watershed extends into Tompkins County therefore close cooperation with Schuyler and Seneca County SWCDs' AEM Strategic Plan is anticipated as well. However, it does show concentrations of silt, sediment, nutrients and pathogens where it discharges into Cayuga Lake, and there have been growing concerns about water quality coming from the municipalities in this area of Tompkins County. This growing concern justifies the District making any reasonable effort to more closely monitor agricultural practices in this area and improve water quality from this watershed if at all possible.
- 6) **All other Tompkins County Watersheds**- As time and opportunity permit, the AEM process will be performed on sites in all watersheds within Tompkins County, and Tier IV implementation projects as necessary and warranted. These areas will include watersheds in the USC, which have their own dedicated programs to address BMP installation, in addition to those available through AGNP, NRCS, and FL-LOWPA, as well as the smaller, direct drainage watersheds: visits to any operations in the direct drainage watersheds could be valuable as these watersheds are not routinely monitored by any government or private conservation organization.

## Objectives & Tasks

### Outreach and Education

GOAL 1-Work with Cornell Cooperative Extension to increase public awareness of AEM and environmentally responsible farming practices by presenting at outreach events, distributing information packets on the various state and federal grant programs, release information on successfully implemented conservation projects that utilized the

AEM process to identify farms via the District Newsletter, County Legislator updates or, where appropriate, local media.

TASK 1- Media/newsletter releases will occur upon the successful completion of all Tier IV implementation projects.

TASK 2- 10 Outreach events that will explain the significance AEM and the District play in preserving/improving soil and water health to local schools, civic organizations, municipalities, legislators and general public.

GOAL 2-Work with partner agencies such as the County Ag and Farmland Protection Board, Watershed Protection agencies NRCS, FSA, County Planning Department, municipalities, , and other Soil and Water Conservation Districts, where applicable, to ensure complimentary implementation of conservation practices to address resource concerns and conservation.

TASK 1-Success for this goal will be measured by noted inter-agency, inter-departmental, and inter-district cooperation on development of AEM Tier IIIA plans, Tier VB BMP evaluations, and AEM Tier IV implementation of new BMPs.

TASK 2- Inter-agency and/or inter-departmental and/or inter-district cooperation will be noted in both District files and in newsletter/media releases on at least ten AEM Tier IIIA plans and/or AEM Tier VB evaluations/updates, and five AEM Tier IV Implementation projects.

#### **Technical:**

YEAR 1 GOAL-Continue to review and update AEM files for farms currently enrolled in the program.

TASK 1- Document any changes in business practices and/or installed BMPs since time of last visit (Tier 5A and 5B respectively). Since 2010, 106 of the 370 AEM files have been updated and are now current. Over the next five years at least 100 files of the remaining 264 will be made current.

YEAR 2 GOAL-Create AEM files for new or undocumented farms (tier 1 and 2), including nurseries, vineyards and hobby farms.

TASK 1- Over the next five years it should be possible to enroll another 75 farms in AEM at the Tier I level at least. According to the NRCS NASS website there are 558 farms in Tompkins County. 370 (66%) are currently enrolled in AEM.

YEAR 3 GOAL- Create a GIS Database for documenting all AEM Tier IV projects since 2005.

YEAR 4-5 GOAL- Continue upkeep on AEM GIS database.

Goal by the End 2019: Complete no fewer than 40 AEM Tier IIIA plans or AEM Tier VB BMP evaluations/updates, and also complete AEM Tier IV implement of BMPs on at least 15 farms within the priority watersheds over the next five years designed to address erosion and nutrient runoff concerns to improve overall water and soil health in Tompkins County.

### **Year 1: 2015-2016**

**Priority 1: Fall Creek Watershed** is the largest sub watershed in Tompkins County. While it is not on the most recent DEC PWL, it drains into the Southern End of Cayuga Lake which is listed on the PWL. Significant efforts are being made by the NYSDEC to analyze the nutrient and silt/sediment load from the Fall Creek Watershed as a pilot program to document similar nutrient and silt/sediment loads from all the tributaries and watersheds draining into the Southern end of Cayuga Lake. Fall Creek is also a principle source of drinking water for nearly 20% of the county, including Cornell. In addition, nearly one third of the farms enrolled in the AEM program for Tompkins County are located in the Fall Creek Watershed.

**GOAL 1-** Update AEM information (Tier I, II and VA and VB) for at least fifteen farms located in the Fall Creek Watershed.

**GOAL 2-** Design Tier IIIA plans for at least eight farms within this watershed.

**TASK 1-** Tier IIIA plans will be developed either for farms already enrolled in AEM but needing to have their information updated, or for farms newly enrolled in AEM. Plan development and prioritization will depend heavily on severity of silt/sediment and nutrient runoff concerns identified on the farm through either the AEM Tier II or Tier VA surveys, proximity to surface water bodies, and ability/willingness of the farmer to participate in the AEM, AGNP, NRCS, and/or other grant programs.

**GOAL 3-** Implement three AEM Tier IV BMP projects utilizing AEM Tier IIIA plans to prioritize projects and determine appropriateness for available grants. Projects addressing nutrient and silt/sediment runoff from pastures and fields will be given highest priority in this watershed.

**TASK 1-** Once proper grant programs have been identified; facilitate farmer application and enrollment as necessary in suitable grant program(s). BMP implementation will then commence through either the AGNP program, NRCS/FSA programs or through the use of other available grant monies as appropriate for the site and resource concern being addressed. Oversight of BMP installation will be performed as needed by the appropriate agency and District representatives.

**TASK 2-** Coordinate all planning, grant application, and BMP implementation activities with any sister agencies, County or Town departments, including highways, or Cayuga and/or Cortland Counties as portions of the Fall Creek Watershed fall within their County boundaries. Note any such cooperation in grant files and in AEM Tier IV database.

**TASK 3-** Upon completion of BMP implementation (AEM Tier IV), prepare any suitable releases for the District News Letter or local Media should the farmers agree to the projects being publicized. Note any inter-agency, inter-departmental, and/or inter-district cooperation that took place during the course of these projects.

## **Year 2: 2016-2017**

**Priority 2: Salmon Creek Watershed** has the highest concentration of livestock in Tompkins County (4 Dairy CAFOs) and several large dairies in the Cayuga County portion of the watershed, as well. Salmon Creek discharges directly into Cayuga Lake, contributing significant concentrations of nutrients, pathogens and silt/sedimentation to Cayuga Lake. Both Salmon Creek and Cayuga Lake are listed on the DEC PWL.

**GOAL 1-** Update all the AEM information (Tier I, II and VA and VB) for at least fifteen farms located in the Salmon Creek Watershed.

**TASK 1-** With the relatively high number CAFOs in this watershed of fewer acres, it is important that we pay particular attention to evaluating existing AEM plans and previously Implemented BMPs (AEM Tier VB) to ensure they have been properly maintained and are functioning as intended. There has been significant attention paid by the press in recent years to CAFO practices in general and manure storage facilities in particular, making the need to ensure the farm practices in this CAFO rich watershed are functioning as intended.

**GOAL 2-** Design or update AEM Tier IIIA plans for at least eight farms in this watershed. With the number of CAFOs present, coupled with the number of acres they will utilize in this watershed, it may be difficult to achieve this goal, since, by state law, CAFOs must have farm plans designed and updated yearly by a certified farm planner for all acres utilized by the operation.

**TASK 1-** Tier IIIA plans will be developed either for farms already enrolled in AEM but needing to have their information updated, or for farms newly enrolled in AEM. Plan development and prioritization will depend heavily on severity of silt/sediment, pathogen and nutrient runoff concerns identified on the farm through either the AEM

Tier II or Tier VA surveys, proximity to surface water bodies, and ability/willingness of the farmer to participate in the AEM, AGNP, NRCS, and/or other grant programs.

**GOAL 3-** Implement three AEM Tier IV BMP projects utilizing AEM Tier IIIA plans to prioritize projects and determine appropriateness for available grants. Projects addressing nutrient, pathogen, and silt/sediment runoff from barnyards, heavy use areas, silage leachate, or manure storage structures will be given highest priority in this watershed. As previously mentioned with the AEM Tier IIIA updating and design goal, because of the concentration of CAFOs in this watershed, the Tier IV Implementation process may be more difficult, as working with any CAFOs will require incorporating their certified farm planner in the application, design, oversight, and evaluation processes.

**TASK 1-** Once proper grant programs have been identified; Tompkins County District personnel, in cooperation with appropriate Cayuga County District personnel, will facilitate farmer application and enrollment as necessary in suitable grant program(s). BMP implementation will then commence through either the AGNP program, NRCS/FSA programs or through the use of other available grant monies as appropriate for the site and resource concern being addressed. Oversight of BMP installation will be performed as needed by the appropriate agency and District representatives.

**TASK 2-** Coordinate all planning, grant application, and BMP implementation activities with any sister agencies, County or Town departments, including highways, or Cayuga and/or Cortland Counties as portions of the Fall Creek Watershed fall within their County boundaries. Note any such cooperation in grant files and in AEM Tier IV database.

**TASK 3-** Upon completion of BMP implementation (AEM Tier IV), prepare any suitable releases for the District News Letter or local Media should the farmers agree to the projects being publicized. Note any inter-agency, inter-departmental, and/or inter-district cooperation that took place during the course of these projects.

### **Year 3: 2017-2018**

**Priority 3: Owasco Inlet Watershed** has a high density of small and medium dairy and beef operations, with one large dairy CAFO present. Water from this watershed drains into Owasco Inlet and from there into Owasco Lake proper, which constitutes a major drinking water source for Cayuga County and the City of Auburn. Both the Owasco Inlet and Owasco Lake are listed on the DEC PWL for nutrient and pathogen runoff.

**GOAL 1-** Update AEM information (Tier I, II and VA and VB) for at least fifteen farms located in the Owasco Inlet Watershed.



**GOAL 2-** Design Tier IIIA plans for at least eight farms within this watershed. This process should not pose nearly the obstacle it could for the Salmon Creek Watershed, as there is only one designated CAFO in this watershed.

**TASK 1-** Tier IIIA plans will be developed either for farms already enrolled in AEM but needing to have their information updated, or for farms newly enrolled in AEM. Plan development and prioritization will depend heavily on severity of nutrient and pathogen runoff concerns identified on the farm through either the AEM Tier II or Tier VA surveys, proximity to surface water bodies, and ability/willingness of the farmer to participate in the AEM, AGNP, NRCS, and/or other grant programs. It is anticipated that there will be some close association the Cayuga County SWCD during planning and implementation stages of this portion of the AEM strategic plan.

**GOAL 3-** Implement three AEM Tier IV BMP projects utilizing AEM Tier IIIA plans to prioritize projects and determine appropriateness for available grants. Projects addressing nutrient, and pathogen runoff from barnyards, heavy use areas, silage leachate, manure storage structures, pastures and crop fields will be given highest priority in this watershed. As previously mentioned with the AEM Tier IIIA updating and planning goal, it is anticipated that there will be some close association with the Cayuga County SWCD during planning and implementation stages of BMPs since a greater portion of the Owasco Inlet watershed lies in Cayuga County. Any proposed designs that affect any portion of an identified CAFO operation in this watershed will require incorporating their certified farm planner at all stages of application, design, oversight, and evaluation processes.

**TASK 1-** Once proper grant programs have been identified; Tompkins County District personnel, in cooperation with appropriate Cayuga County District personnel, will facilitate farmer application and enrollment as necessary in suitable grant program(s). BMP implementation will then commence through either the AGNP program, NRCS/FSA programs or through the use of other available grant monies as appropriate for the site and resource concern being addressed. Oversight of BMP installation will be performed as needed by the appropriate agency and District representatives.

## **Year 4: 2018-2019**

**Priority 4: Cayuga Inlet**, encompassing the Cayuga Inlet, Enfield Creek and Six-Mile Creek, Watersheds and constitutes the largest watershed in Tompkins county, covering 34% of the County with 31% of the AEM enrolled farms. This watershed discharges directly into Cayuga Lake and represents the primary source of water for most of southern Tompkins County and the City of Ithaca. Both Cayuga Inlet and Cayuga Lake are listed on the DEC PWL as being threatened for use as a public water source.

GOAL 1- Update all the AEM information (Tier I, II and VA and VB) for at least fifteen farms located in the Cayuga Inlet Watershed.

GOAL 2- Design Tier IIIA plans for at least eight farms within this watershed.

TASK 1- Tier IIIA plans will be developed either for farms already enrolled in AEM but needing to have their information updated, or for farms newly enrolled in AEM. Plan development and prioritization will depend heavily on severity of silt/sediment and nutrient runoff concerns identified on the farm through either the AEM Tier II or Tier VA surveys, proximity to surface water bodies, and ability/willingness of the farmer to participate in the AEM, AGNP, NRCS, and/or other grant programs.

GOAL 3- Implement three AEM Tier IV BMP projects utilizing AEM Tier IIIA plans to prioritize projects and determine appropriateness for available grants. Projects addressing nutrient and silt/sediment runoff from pastures and fields will be given highest priority in this watershed.

TASK 1- Once proper grant programs have been identified; facilitate farmer application and enrollment as necessary in suitable grant program(s). BMP implementation will then commence through either the AGNP program, NRCS/FSA programs or through the use of other available grant monies as appropriate for the site and resource concern being addressed. Oversight of BMP installation will be performed as needed by the appropriate agency and District representatives.

TASK 2- Coordinate all planning, grant application, and BMP implementation activities with any sister agencies, County or Town departments, including highways. Note any such cooperation in grant files and in AEM Tier IV database.

TASK 3- Upon completion of BMP implementation (AEM Tier IV), prepare any suitable releases for the District News Letter or local Media should the farmers agree to the projects being publicized. Note any inter-agency, inter-departmental, and/or inter-district cooperation that took place during the course of these projects.

## **Year 5: 2019-2020**

**Bolter-Taughanock Creek Watershed** is listed on the DEC PWL and discharges directly into Cayuga Lake. There are relatively few farms enrolled in the AEM program from this sub-watershed, though the ones recorded there are mostly dairy operations, with one CAFO located in Tompkins County. In addition, dairy operations from Schuyler County have recently been expanding their operations into the Tompkins County portion of this sub-watershed, as well as increased row crop production. This coupled increasing coliform counts and sediment blooms in the water recorded by CSI, DEC and other monitoring organizations, have compelled us to focus on this relatively small watershed.

GOAL 1- Update all the AEM information (Tier I, II and VA and VB) for at least fifteen farms located in the Bolter-Taughanock Creek Watershed.

TASK 1- This watershed has not received a great deal of attention from the District in the past, as such there are only 15 farms enrolled in AEM located in this watershed. Additionally, it is possible that there are less than 30 farms in this portion of the watershed. To reach the goal of doubling the number of AEM enrolled farms in the Tompkins County portion of the watershed will likely require a significant amount of outreach.

GOAL 2- Design Tier IIIA plans for at least eight farms within this watershed.

TASK 1- Tier IIIA plans will be developed either for farms already enrolled in AEM but needing to have their information updated, or for farms newly enrolled in AEM. Plan development and prioritization will depend heavily on severity of silt/sediment, nutrient and pathogen runoff concerns identified on the farm through either the AEM Tier II or Tier VA surveys, proximity to surface water bodies, and ability/willingness of the farmer to participate in the AEM, AGNP, NRCS, and/or other grant programs. It is expected that most Tier IIIA plans in this watershed will be for farms new to the AEM program. It is anticipated that there will be some close association the Schuyler County SWCD during planning and implementation stages of this portion of the AEM strategic plan.

GOAL 3- Implement three AEM Tier IV BMP projects utilizing AEM Tier IIIA plans to prioritize projects and determine appropriateness for available grants. Projects addressing nutrient, pathogen, and silt/sediment runoff from barnyards, heavy use areas, silage leachate, or manure storage structures will be given highest priority in this watershed. As previously mentioned with the AEM Tier IIIA updating and design goal, it is anticipated that there will be some close association with the Schuyler County SWCD during planning and implementation stages of this portion of the AEM strategic plan.

TASK 1- Once proper grant programs have been identified; Tompkins County District personnel, in cooperation with appropriate Schuyler County District personnel, will facilitate farmer application and enrollment as necessary in suitable grant program(s). BMP implementation will then commence through either the AGNP program, NRCS/FSA programs or through the use of other available grant monies as appropriate for the site and resource concern being addressed. Oversight of BMP installation will be performed as needed by the appropriate agency and District representatives. It should be noted, that since little attention has been paid by AEM to this watershed in the past, it is unclear whether there are sufficient farms in the Tompkins County portion of the watershed that meet the AGNP criteria for implementation (AEM Tier IV).

**TASK 2-** Coordinate all planning, grant application, and BMP implementation activities with any sister agencies, County or Town departments, including highways, or Schuyler County as portions of the Bolter-Taughanock Creek Watershed fall within their County boundaries. Note any such cooperation in grant files and in AEM Tier IV database.

**TASK 3-** Upon completion of BMP implementation (AEM Tier IV), prepare any suitable releases for the District News Letter or local Media should the farmers agree to the projects being publicized. Note any inter-agency, inter-departmental, and/or inter-district cooperation that took place during the course of these projects.

**Farms in all other Tompkins County Watersheds and Sub-Watersheds** will be addressed as time and opportunity warrant. These include the watersheds that are part of the Upper Susquhanna River Watershed, and several small “direct drainage” sub-watersheds that feed into Cayuga Lake, but are not regularly monitored by the DEC or other organizations and which, in general, have a small agricultural presence.

**GOAL 1-** Update all the AEM information (Tier I, II and VA and VB) for at least fifteen farms located in these Watersheds over the five years covered by this strategic plan.

**GOAL 2-** Design Tier IIIA plans for at least eight farms within these watersheds over the five years covered by this strategic plan.

**TASK 1-** Tier IIIA plans will be developed either for farms already enrolled in AEM but needing to have their information updated, or for farms newly enrolled in AEM. Plan development and prioritization will depend heavily on severity of silt/sediment, pathogen and nutrient runoff concerns identified on the farm through either the AEM Tier II or Tier VA surveys, proximity to surface water bodies, and ability/willingness of the farmer to participate in the AEM, AGNP, NRCS, and/or other grant programs.

**GOAL 3-** Implement two AEM Tier IV BMP projects over the five years covered by this strategic plan utilizing AEM Tier IIIA plans to prioritize projects and determine appropriateness, if any, for available grants. Projects addressing nutrient, pathogen and silt/sediment runoff from pastures and fields will be given highest priority in this watershed.

**TASK 1-** Once proper grant programs have been identified; facilitate farmer application and enrollment as necessary in suitable grant program(s). BMP implementation will then commence through either the AGNP program, NRCS/FSA programs or through the use of other available grant monies as appropriate for the site and resource concern being addressed. Oversight of BMP installation will be performed as needed by the appropriate agency and District representatives.

TASK 2- Coordinate all planning, grant application, and BMP implementation activities with any sister agencies, County or Town departments, including highways. Note any such cooperation in grant files and in AEM Tier IV database.

TASK 3- Upon completion of BMP implementation (AEM Tier IV), prepare any suitable releases for the District News Letter or local Media should the farmers agree to the projects being publicized. Note any inter-agency, inter-departmental, and/or inter-district cooperation that took place during the course of these projects.

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### **Acknowledgements**

Special Thanks goes out to Eugene Aarnio for writing, editing and organizing public meetings in preparation of this Strategic Plan

Thanks is also extended to the Cornell Cooperative Extension for the extensive dataset that were used in compiling the background sections for this plan.

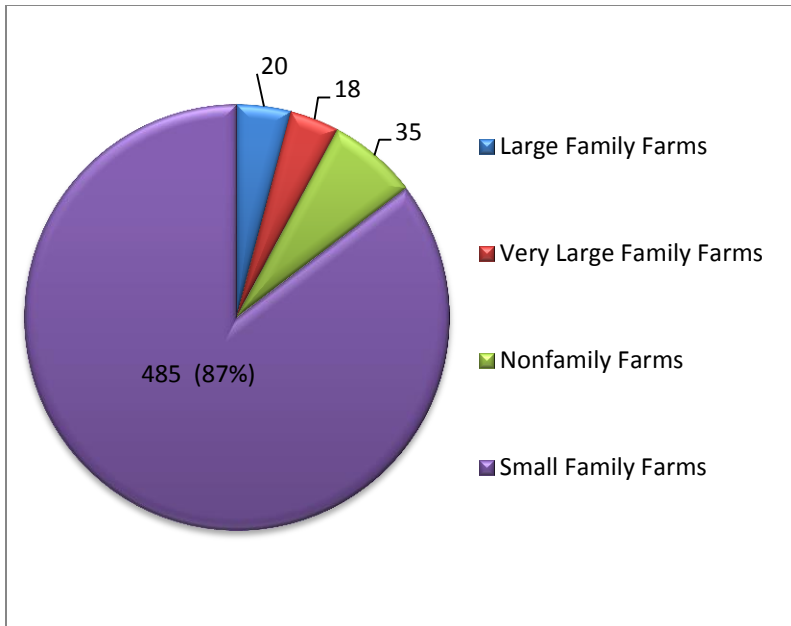
## **List of Figures**

## **Figure 1. Tompkins County Watersheds**



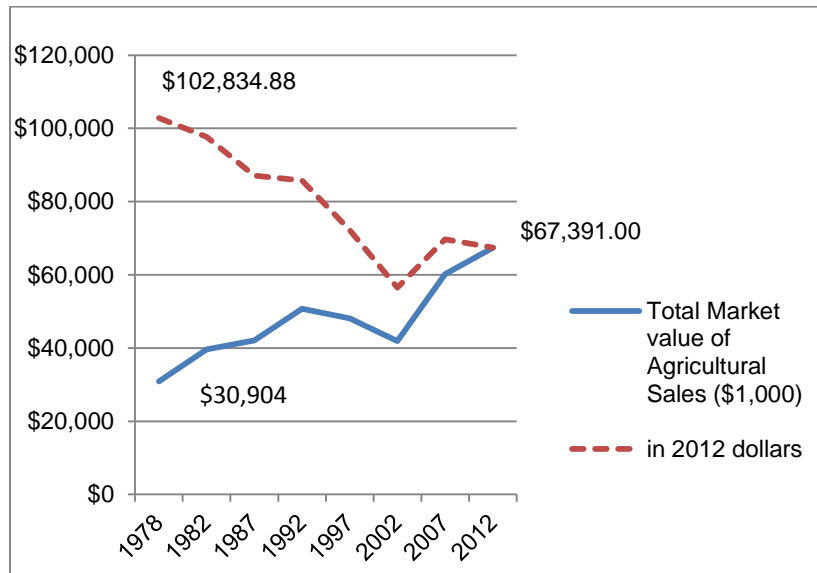


**Figure 2. Number of Farms by Farm Type, 2012**



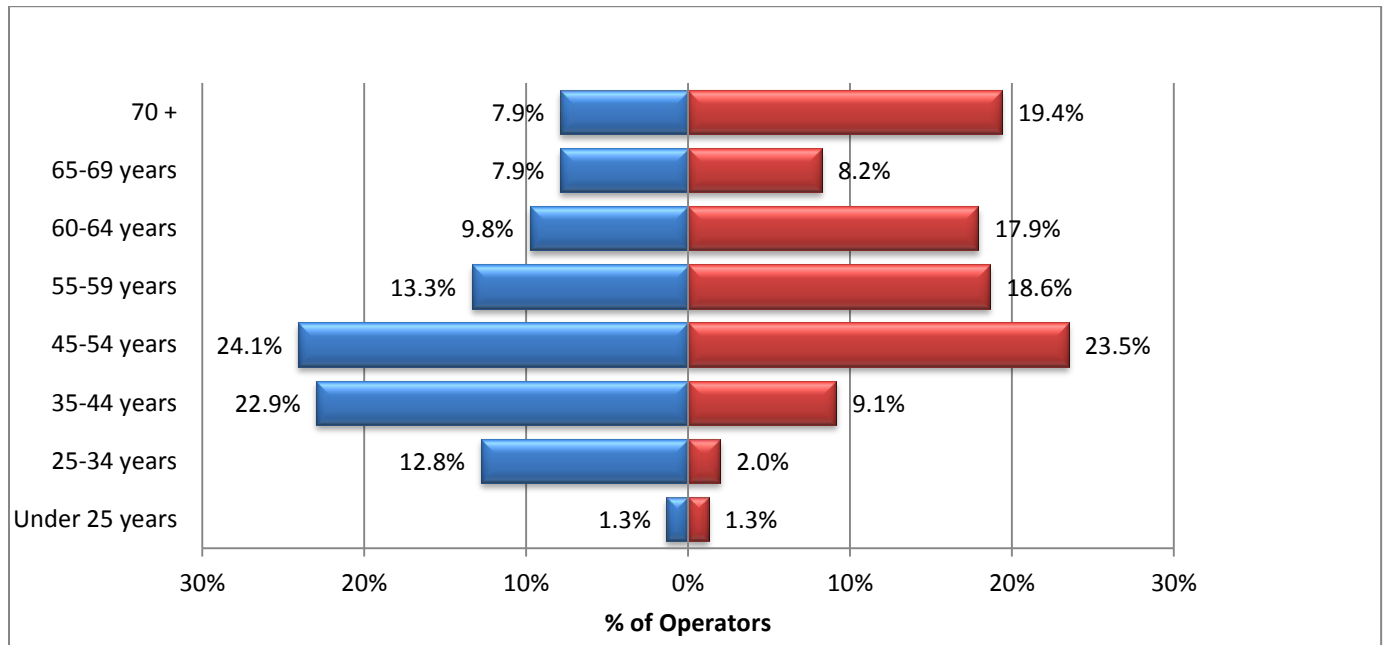
**Figure 3. Total Agricultural Sales, 1978-2012**

*Source: USDA Census of Agriculture*



**Figure 4. Percentage of Principal Operators by Age Group, Tompkins County, 1987-2012**

*Source: USDA Census of Agriculture*



**Figure 5. NYS DEC Protected Streams in Tompkins County Map**

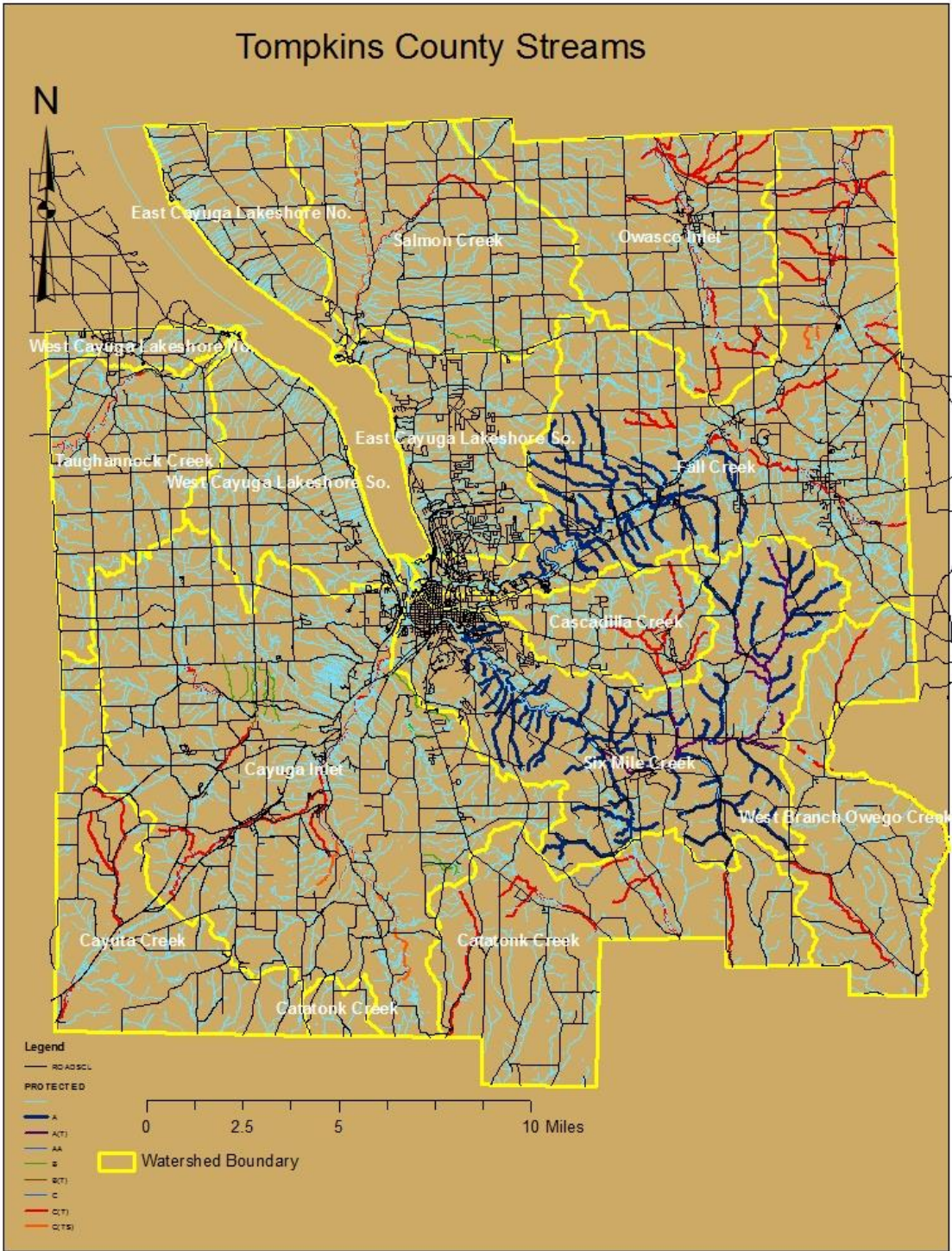
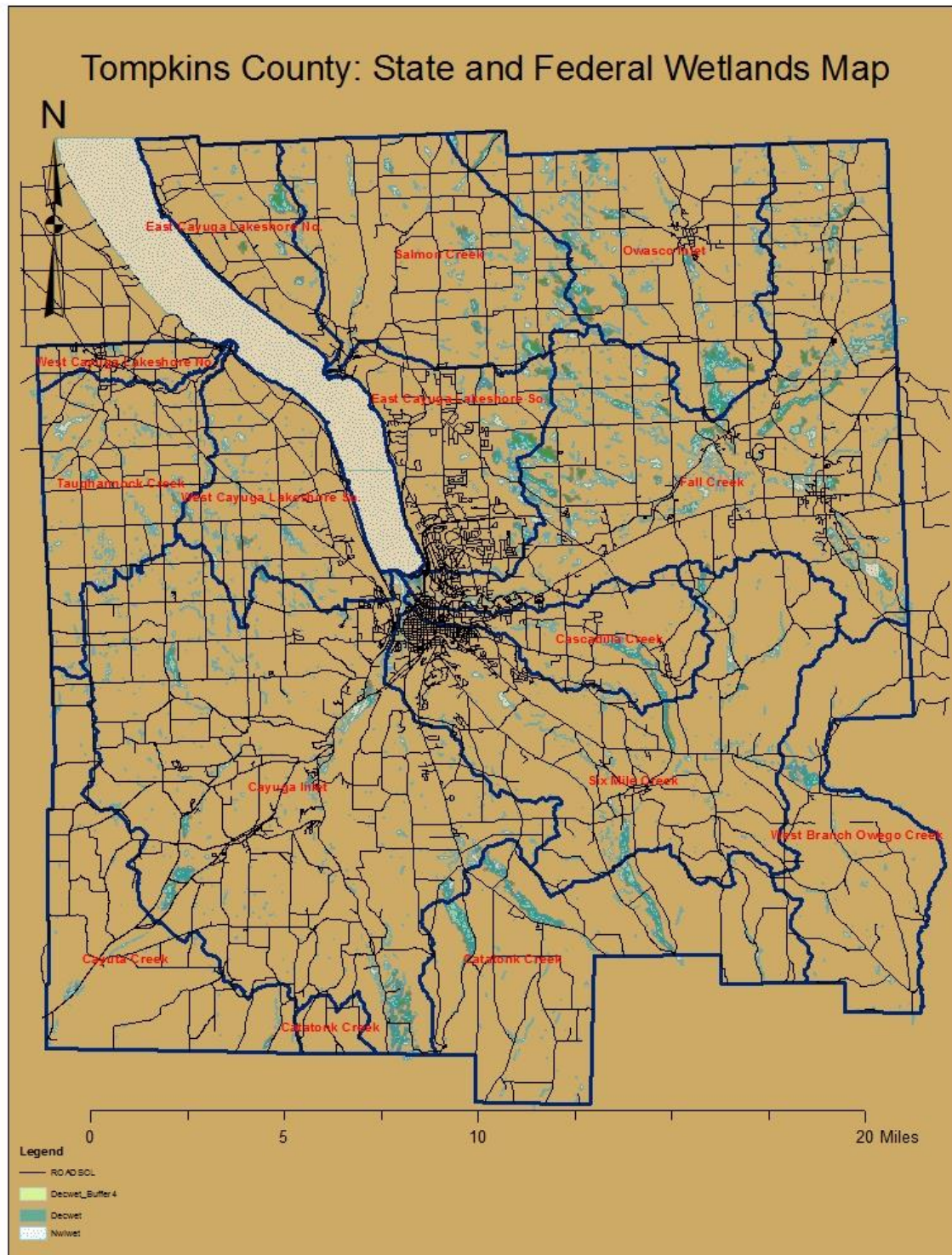




Figure 6. NYS and Federal Wetlands in Tompkins County  
Map



**Figure 7. County Ag Conservation Easements & Ag Focus Areas**

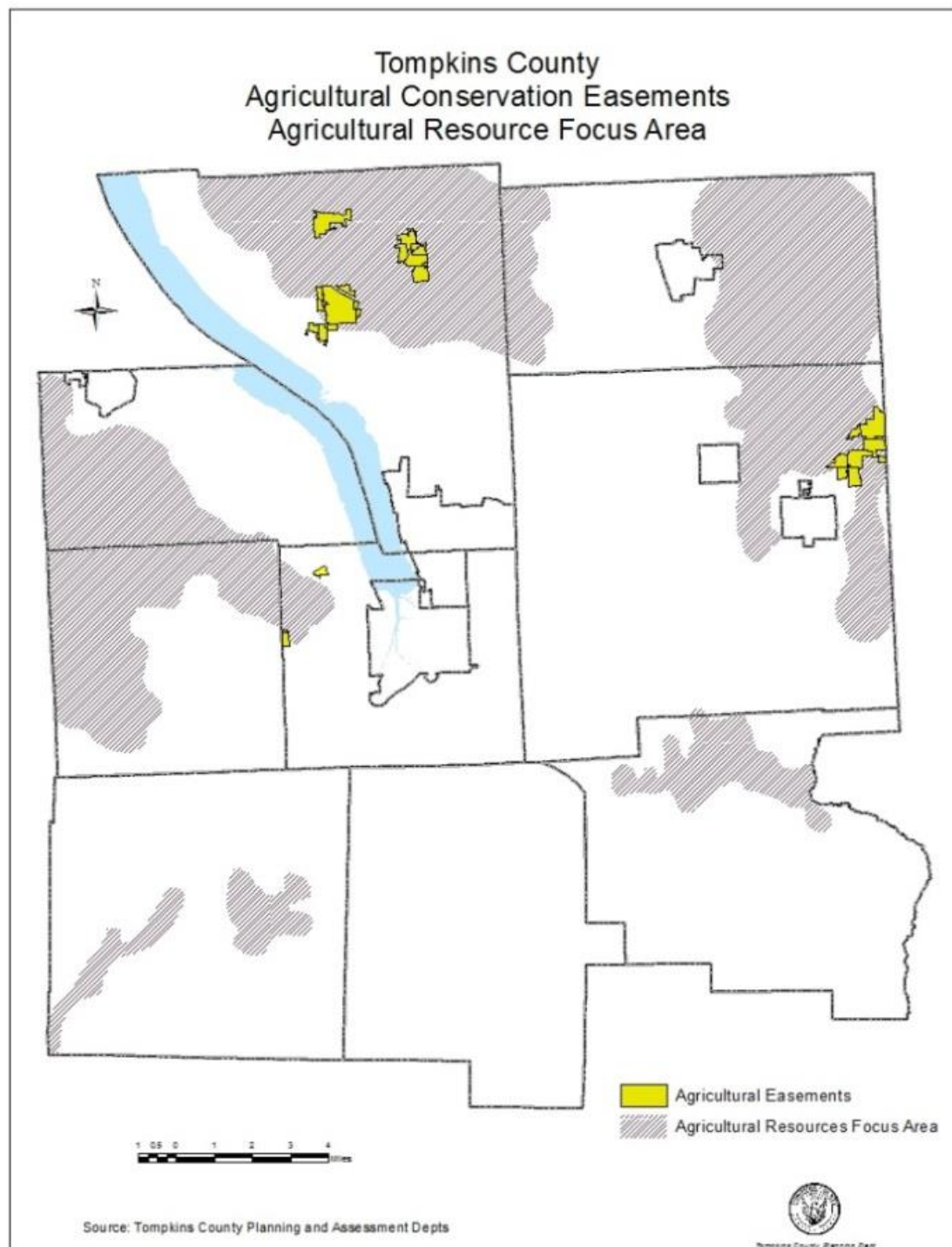




Figure 8. County Ag Soils

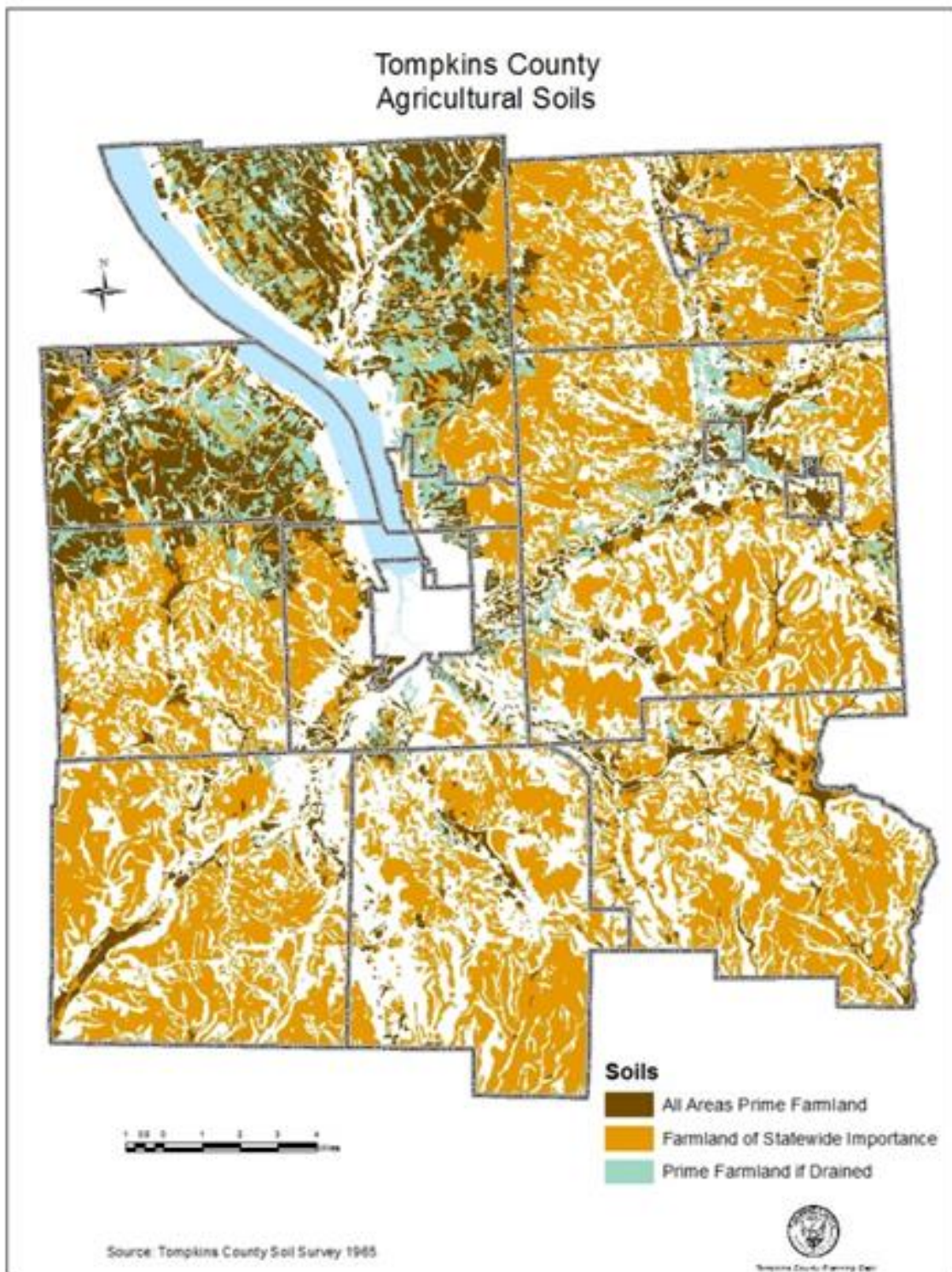
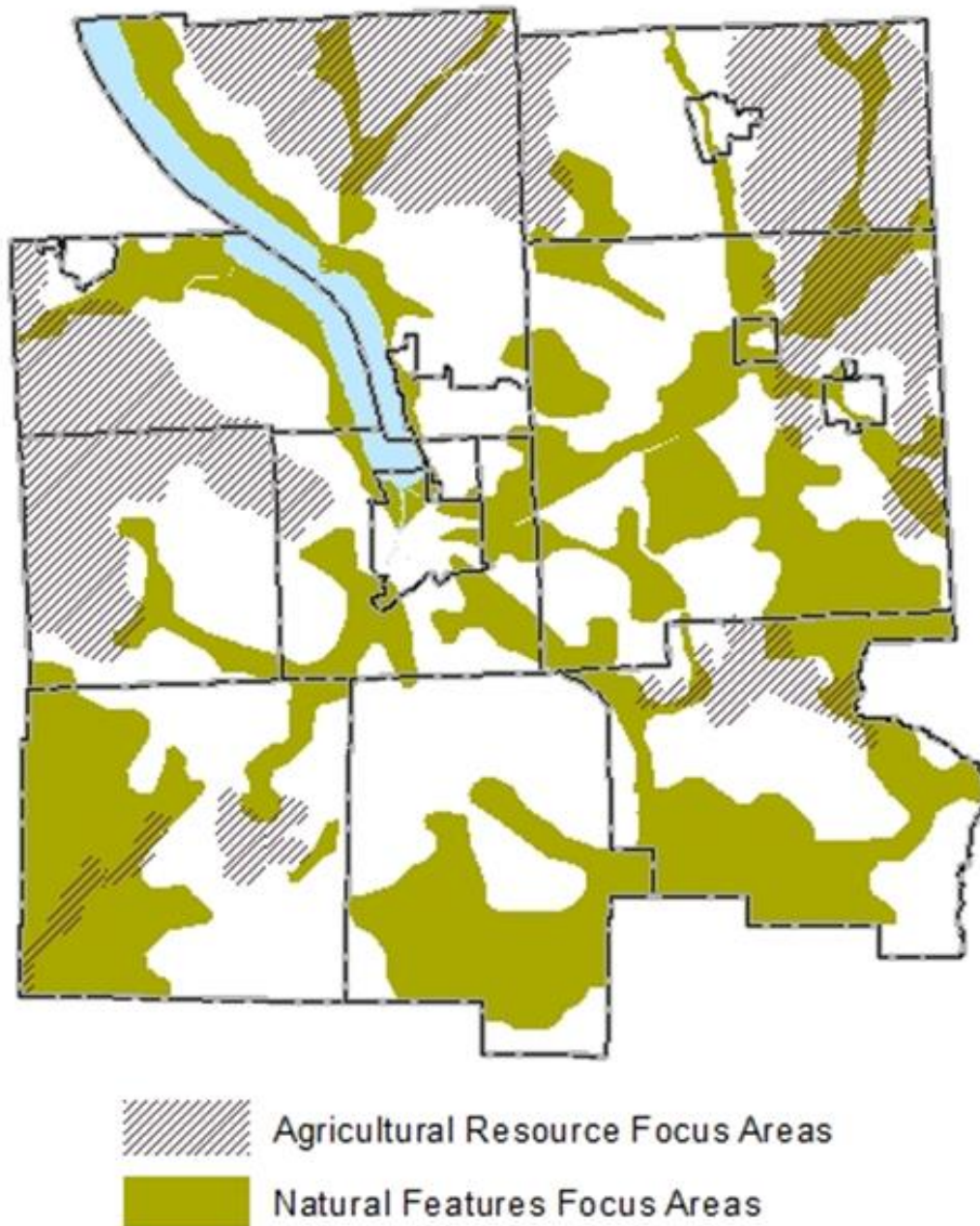


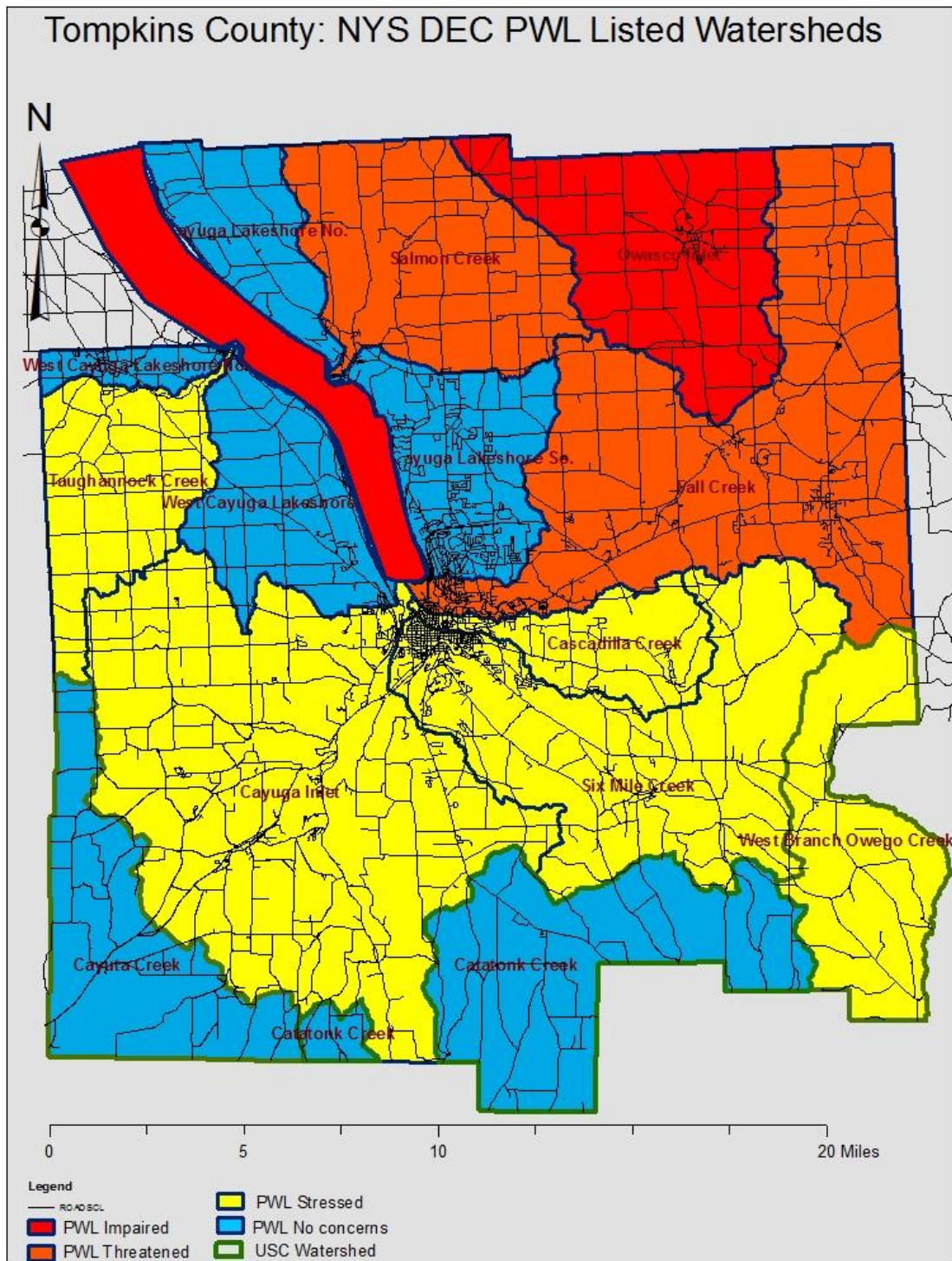


Figure 9. County Ag & Natural Resource Focus Areas

## Agricultural Resource Focus Areas and Natural Features Focus Areas



**Figure 10. Priority Waterbodies Listed Waters**



## Figure 11. Stakeholder Meeting Data

<b><u>GROUPS</u></b>			
<b><u>Watershed</u></b>	<b><u>Priority</u></b>	<b><u>Group Votes</u></b>	<b><u>Individual Votes</u></b>
Salmon Creek	1	2	3
Owasco Inlet	2	1	1
Fall creek	3	1	1
Cayuga Inlet	4	2	2
Bolter-Taughanock	5	1	1
Fall Creek	1	1	3
Salmon Creek	2	1	4
Owasco Inlet	3	1	4
Bolter-Taughanock	4	1	2
Cayuga Inlet	5	1	3
Fall creek	2	1	2
Bolter-Taughanock	3	1	2
Six-Mile Creek	5	1	1
<b><u>FINAL</u></b>			
<b><u>Watershed</u></b>	<b><u>Priority</u></b>	<b><u>Reason</u></b>	
Salmon Creek	1	2 Group votes, 3 individual votes.	
Fall Creek	2	Second highest #1 vote (1 group, 3 individual) and highest #2 vote (1 group, 2 Individual)	
Owasco Inlet	3	Second Highest #2 rating (1 each), with 2 group votes and 5 individual votes for priority 3/4.	
Bolter- Taughanock Creek	4	2 Group votes, 4 Individual votes	
Cayuga Inlet (Inlet, Enfield Creek, Sixmile Creek)	5	2 Group Votes, 2 individual votes.	

**Figure 12. Stakeholder Meeting Data - Watershed  
Resource Concerns**

<b><u>Watershed</u></b>	<b><u>Resource Concerns</u></b>	<b><u>Corresponding BMPs</u></b>	<b><u>Other factors</u></b>
Salmon Creek	Manure runoff, Pathogens, Erosion, Invasive Species & Nutrients	Access Control (472), Conservation Cover (327), Contour Buffer Strips (332), Cover Crops (340), Diversion (362), Drainage Water Managemement (554), Fence (382), Grassed Waterway (412), Heavy Use Area Protection (561), Nutrient Management (590), Pathogen Managment (783), Prescribed Grazing (528), Riparean Forest Buffer (391), Riparean Herbacious Buffer (390), Roof Runoff Structure (558), Stormwater runoff control (570), Waste Storage Facility (313), Waste TRansfer Facility (634), Watering Facility (614)	High Potential Impact of AEM, Partnerships available with landowners and sister agencies, high # of CAFOs

Fall Creek	Nutrients, Pathogens, Silage Leachate, Streambank Erosion, field runoff	Conservation Crop rotation (328), Access Control (472), Conservation Cover (327), Contour Buffer Strips (332), Cover Crops (340), Diversion (362), Drainage Water Management (554), Fence (382), Grassed Waterway (412), Heavy Use Area Protection (561), Nutrient Management (590), Pathogen Management (783), Prescribed Grazing (528), Riparian Forest Buffer (391), Riparian Herbaceous Buffer (390), Roof Runoff Structure (558), Stormwater runoff control (570), Waste Storage Facility (313), Waste TRansfer Facility (634), Watering Facility (614)	Large Watershed, high # of Cafos, high density of people affected by water quality, High Potential for AEM Impact, Partnerships available with Sisteragencies, EQIP Priority watersehd, TMDL being developed for it.
Owasco Inlet	Manure runoff, Pathogens, Pesticide runoff, field runoff	see above list	
Bolter-Taughanock Creek	Nutrients, Pathogens, Fertilizer runoff, Manure Runoff, Field runoff	See above List, Plus: Contour Farming (330), Grade Stabalization Structure (410),	Large portion of this watershed, and thus the source of these resource concerns is in other counties
Cayuga Inlet (Inlet, Enfield Creek and Six mile Creek)	Invasive Species, Erosion, Sedimentation, Pesticide runoff, cropland runoff, roof runoff	See above list, plus: Stream bank and shoreline Protection (580)	